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| 10/644,391 | 08/20/2003 | Jens-Wolf Jaisle | DKT02106 | 6133 |

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BorgWarner, Inc.
PATENT ADMINISTRATOR
3850 HAMLIN ROAD
Auburn Hills, MI 48326-2872

EXAMINER

TRIEU, THAI BA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3748

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/644,391

Applicant(s)

JAISLE, JENS-WOLF

Examiner

Thai-Ba Trieu

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 16-22 and 24-34 is/are rejected.
7) ☒ Claim(s) 23 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 16 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on September 16, 2005. Applicant's cooperation in correcting the informalities in the drawing and specification is appreciated. Applicant's cooperation in amending the claims to overcome the claim objections relating to indefinite claim language is also appreciated. Claims 18, 23, 27, and 31 are amended.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 31 and its dependent claims 32-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

- In line 4, the recitation of "can flow successively" renders the claim indefinite, since it is not clear that under which condition the air stream can flow successively through the bearing gaps, and under which condition the air stream can flow un-successively through the bearing gaps. Applicant is required to identify each condition.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-22 and 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassler (Patent Number DE 100 40 508 A1), in view of Andres et al. (Patent Number 5,310,311).

Regarding claim 18-22 and 24-26, Hassler discloses exhaust gas turbocharger (7) having a housing and having a shaft (Not Shown) rotatable about its longitudinal axis in the housing and on which a turbine wheel (the well-known component in the turbine 9) and a compressor wheel (the well-known component in compressor 6) are seated and which is guided in bearings (located in the bearing housing 10); at least one flow duct (via 11), for supplying air stream to at least one bearing gap, is formed in the housing (See Figure , Abstract, and Paragraph [0019]);

wherein the at least one flow duct opens into a compressor housing (housing of compressor 6) of the turbocharger (7) (See Figure);

wherein the flow duct (via 11) is formed at least in sections by a pipeline running outside the housing (See Figure);

wherein the housing has at least one outlet opening (Not Numbered) for the air, which flows through the bearings (See Figure); and

a cross section of the flow duct (62, 65) is small in comparison with a cross section of a line, leading to the engine, for the compressed air (See Figure).

However, Hassler fails to disclose magnetic radial bearings, at least one axial bearing, each bearing having a bearing plate, the gaps of the bearings, and a separate flow duct.

Andres teaches that it is conventional in the magnetic bearing art, to utilize radial bearings being magnetic bearings (40) and at least one axial bearing (60) the bearings (40, 60) each having a bearing plate (45, 61) which is seated on the shaft (16) and at least one stator (15), which lies axially opposite said bearing (45, 61) plate on at least one side, thus forming a gap between the bearing plate and the stator; and the gaps of the bearings (5, 6, 9) communicating with one another via further flow ducts formed in the housing; and wherein a separate flow duct leads to each of the bearings (Not Numbered, clearly seen in Figures 2, 3, and 5) (See Figures 1-5, Column 4, lines 9-23)

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized magnetic radial bearings, at least one axial bearing, each bearing having a bearing plate, the gaps of the bearings, and a separate flow duct, as taught by Andres, to improve the efficiency of the Hassler device, since the use thereof would have provided the precisely support the shaft rotating at high speed in a high vibration, high shock and high temperature environment.

Regarding claims 27-33, the method as claimed would be inherent during the normal use and operation of the modified Hassler device as disclosed in the rejection of claims 18-26.

Allowable Subject Matter

Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed September 16, 2005 have been fully considered but they are not persuasive. Accordingly, claims 18-34 are pending.

In response to applicant's arguments set forth in the remarks, that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a turbocharger wherein magnetic bearings without oil are used in place of floating bearings lubricated and cooled with oil; and supplying air from the compressor side of Anders – the second reference used to be combined with the first reference to Hassler -- to the bearings would introduce rather than reduce heat, or at least be a very inefficient method of heat removal) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, for instant, the Hassler reference teaches all the limitations as recited in the rejection above; however, the Hassler reference does not teach the magnetic radial bearings, at least one axial bearing, each bearing having a bearing plate, the gaps of the bearings, and a separate flow duct. The Andres reference, in the filed of endeavor, is applied herein for teaching of using the magnetic bearing having structural details having bearing plate, bearing gaps and separate flow duct for delivering air to cool down the bearings. The examiner maintains that such modification, i.e. using the structural details of the Andres magnetic bearing is used to modify the turbocharger system of the Hassler, is well-known within one of ordinary skill in the art, and is not convinced that the use structural details of the magnetic bearing rises to the level of patentability.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- LaRue et al. (Pub. Number US 2005/0210875 A1) disclose a turbocharger with hydrodynamic foil bearings being cooled by the compressed-and-cooled air stream (See Figure 1).

- LaRue (Pub. Number US 2005/0193732 A1) discloses a method and apparatus for cooling turbo-machinery components.

- Ghizawi (US Patent Number 6,668,553 B1) discloses an ejector based cooling system for turbochargers.

- Greenwald (US Patent Number 2,973,136) discloses a compressor.

- Nishida et al. (Patent Number JP 2000 046000 A) discloses a high frequency electric motor or magnetic bearing of a turbo-compressor being cooled by cool air, which is sent by a blower.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Art Unit: 3748

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
November 07, 2005


Thai-Ba Trieu
Primary Examiner
Art Unit 3748

REPLACEMENT FIGURES

Approved for entry
11/07/05
TTB

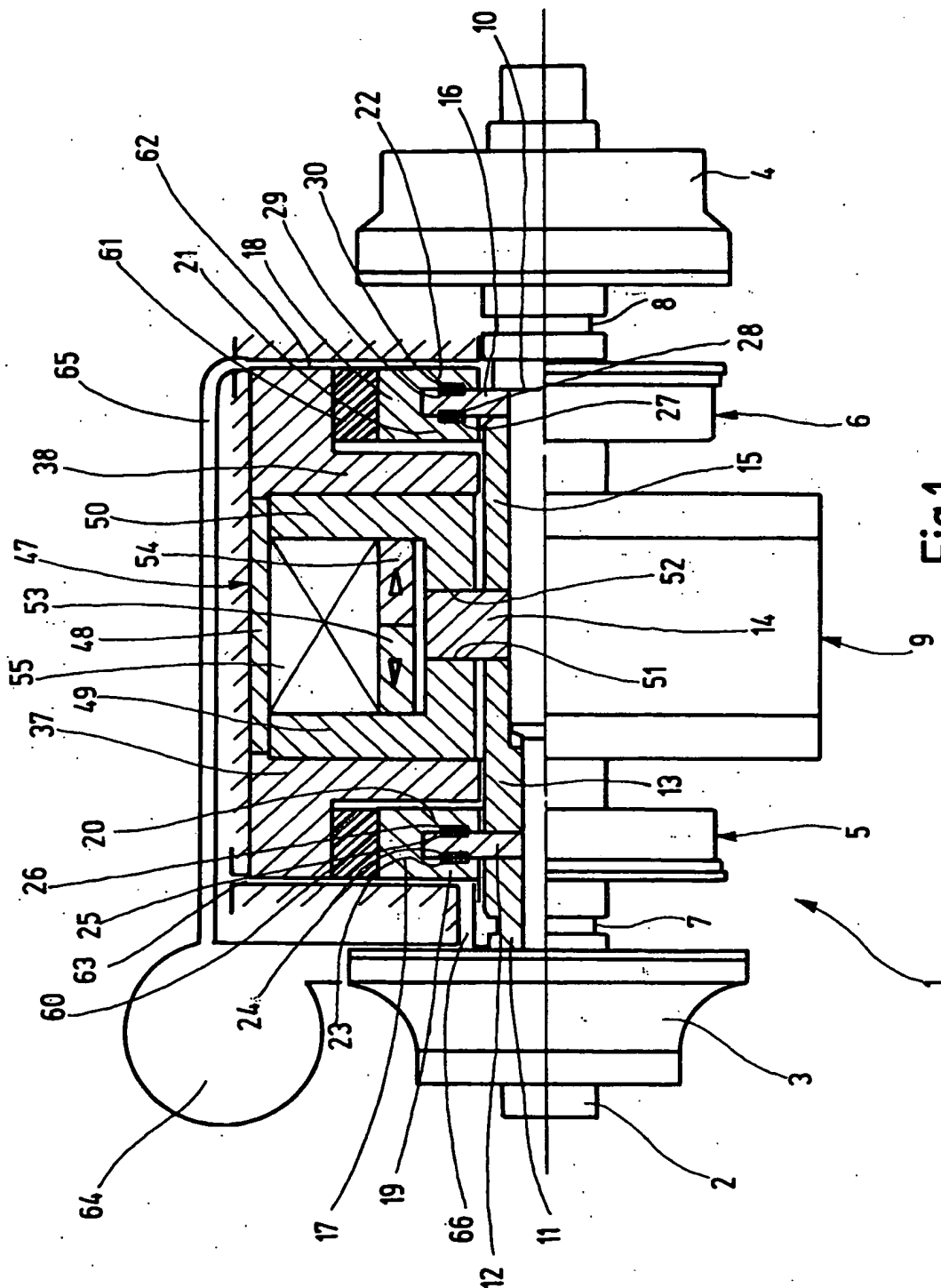
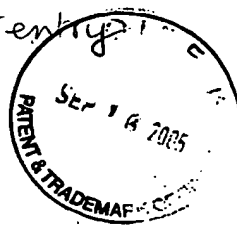


Fig. 1

